

WHAT IS CLAIMED IS:

1. A laser treatment apparatus including:

a laser light source, and

a light guiding optical system, having an optical axis, for guiding a
5 treatment laser beam emitted from the laser light source to a treatment
part,

wherein the light guiding optical system includes:

an optical fiber through which the treatment beam emitted from the
laser light source is guided;

10 a variable magnification optical system which changes a
magnification of an image of an exit end face of the optical fiber to be
formed on the treatment part in order to change a size of an irradiation
spot of the treatment beam on the treatment part; and

a beam-attenuating member having a transmittance property that a
15 transmittance is lower in a center portion than in a peripheral portion, the
beam-attenuating member being placed in a position on the optical axis
where an on-axis luminous flux and an off-axis luminous flux of the
treatment beam emerging from the exit end face of the optical fiber pass
through the beam-attenuating member at different ratios.

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2. The laser treatment apparatus according to claim 1, wherein the
transmittance property and the position of the beam-attenuating member
are determined so as to attenuate the on-axis luminous flux while not
attenuating an outermost off-axis luminous flux when the irradiation spot
25 size is set at a maximum by the variable optical system and so as to
attenuate both the on-axis luminous flux and the outermost off-axis
luminous flux at substantially the same ratio when the irradiation spot
size is set at a minimum by the variable optical system.

3. The laser treatment apparatus according to claim 2, wherein the variable magnification optical system changes the irradiation spot size in a range of at least 50 μm to 500 μm in diameter.

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4. The laser treatment apparatus according to claim 1, wherein the variable magnification optical system changes the irradiation spot size in a range of at least 50 μm to 500 μm in diameter.

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5. The laser treatment apparatus according to claim 1, wherein the transmittance property and the position of the beam-attenuating member are determined so as to change a beam-attenuating ratio between the on-axis luminous flux and the off-axis luminous flux in association with a change in the irradiation spot size by the variable magnification optical system.

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6. The laser treatment apparatus according to claim 1, wherein the beam-attenuating member includes a shielding part for blocking the treatment beam, the shielding part is provided centrally on the beam-attenuating member and on the optical axis.

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7. The laser treatment apparatus according to claim 6, wherein the shielding part is adapted to have a size so that a part of the on-axis luminous flux is blocked.

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8. The laser treatment apparatus according to claim 7, wherein the shielding part is adapted to have a size so that a beam-attenuating ratio of the on-axis luminous flux at the position of the shielding part corresponds

to an intensity ratio between the center portion and the peripheral portion of the irradiation spot.

5 9. The laser treatment apparatus according to claim 6, wherein the shielding part is provided in the position on the optical axis where the on-axis luminous flux and the off-axis luminous flux do not coincide in a vertical plane to the optical axis.

10 10. The laser treatment apparatus according to claim 1 including an ophthalmic laser treatment apparatus for performing at least one of a retinal photocoagulation treatment and an iris incision treatment.